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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,430	03/07/2002	Shmuel Cabilly	IVGN 382	9454

52059 7590 08/14/2007  
INVITROGEN CORPORATION  
C/O INTELLEVATE  
P.O. BOX 52050  
MINNEAPOLIS, MN 55402

EXAMINER
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BARTON, JEFFREY THOMAS

ART UNIT	PAPER NUMBER
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1753

MAIL DATE	DELIVERY MODE
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08/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/091,430

Applicant(s)

CABILLY ET AL.

Examiner

Jeffrey T. Barton

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 73-76, 78-82 and 93-95 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 73-76, 78-82 and 93-95 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20070725</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7 June 2007 has been entered.

### ***Response to Amendment***

2. The amendment filed on 7 June 2007 does not place the application in condition for allowance.

### ***Status of Rejections Pending Since the Office Action of 7 September 2006***

3. All previous rejections are withdrawn due to Applicant's amendment.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1753

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 73-76, 78-82, and 93-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cabilly et al (WO 97/41070) in view of Updyke et al. (US 5,922,185)

Regarding claim 73, Cabilly et al disclose an electrophoresis apparatus and methods for its use, comprising: a body of separating gel (Figure 21, gel 518); a cathode electrically coupled to a first end of the gel (Figure 21, cathode 326); an anode comprising an electrochemically ionizable metal (Figure 21, anode 324; Page 23, lines

12-17), said anode being disposed in a semi-solid ion reservoir containing a buffer (Figure 21 - anode 324 is partially covered by matrix 320; Page 25, lines 1-13 - a gel immersed in buffer solution can be characterized as "semi-solid"), said semi-solid ion reservoir being disposed at a second end of the gel body (Figure 21) and electrically coupled to the gel body, said ion reservoir and buffer being configured for retarding the migration of ions of the electrochemically ionizable metal in the gel body during electrophoresis. (Page 8, lines 19-21; Page 12, lines 22-36; Page 23, lines 12-17)

Regarding claim 74, Cabilly et al disclose the electrodes, gel body, and ion reservoirs being disposed in a substantially closed cassette. (Figures 3, 4, 19-21)

Regarding claims 75 and 76, Cabilly et al disclose an aluminum cathode and copper electrodes. (Page 8, lines 17-18 and 27-29)

Regarding claim 80, Cabilly et al disclose polyacrylamide and agarose gel bodies. (Page 11, lines 22-24)

Regarding claim 82, Cabilly et al disclose the gel body comprising sample wells. (Page 13, lines 4-6)

Cabilly et al do not explicitly disclose using a buffer that comprises a Zwitter ion and either Bis-Tris or amino methyl propanol.

Updyke et al teach forming and storing an electrophoresis gel medium in a Bis-Tris/Tricine buffer comprising 90 mM Tricine and 90 mM Bis-Tris (Example 8), and teach the advantages of this buffer system in preventing degradation of polyacrylamide gel while stored and in enhancing the resolution of analyses. (Column 4, lines 35-47;

Column 5, line 51 - Column 6, line 23) Tricine is a Zwitter ion at pH levels useful within the disclosures of the prior art and within the field of biological analysis.

It would have been obvious to one having ordinary skill in the art to modify the apparatus of Cabilly et al by replacing the gel and exchange matrix buffer in the cassette of Cabilly et al with the Bis-Tris/Tricine buffer taught by Updyke et al, because Updyke et al teaches the advantage of this buffer in enabling long-term storage of pre-made gels, and also teaches enhancement of resolution afforded by this buffer, both of which would have been recognized as advantageous to one having ordinary skill in the art.

Since the buffer concentration taught by Updyke et al falls within the range disclosed as suitable and as corresponding to the claimed conductivity range (Specification Page 6, lines 8-12), the 180 mM buffer of Updyke et al is considered to meet the conductivity limitation, in the absence of evidence to the contrary.

In addition, since Bis-Tris/Tricine is disclosed as having the claimed property of inhibiting the migration of ions of the electrochemically ionizable metal, (Specification, Page 10, line 28 - Page 11, line 5), the combination is also considered to meet this limitation.

Regarding claim 78, the pK of Bis-Tris is 1.6 pH units lower than that of Tricine. (Note the instant specification at Page 10, lines 31 and 32)

Regarding claim 81, undue weight cannot be given to this limitation, since it directed towards the intended function of the apparatus in use. A recitation of the intended use of the claimed invention must result in a structural difference between the

claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). According to Applicant's disclosure (Example 1), Bis-Tris/Tricine buffer is capable of performing the claimed function.

Regarding claim 93, tricine comprises a carboxyl group.

Regarding claim 94, the buffer taught by Updyke et al has an overall concentration of about 180 mM.

Regarding claim 95, the buffer taught by Updyke et al is present in the separating gel.

### ***Response to Arguments***

8. Applicant's arguments filed 7 June 2007 have been fully considered but they are not persuasive.

Applicant argues that Cabilly et al do not disclose a buffer comprising Bis-Tris or amino methyl propanol. The Examiner agrees. However, the Examiner believes the inclusion of such a buffer in the cassette of Cabilly et al would have been obvious in view of the teachings of Updyke et al, as presented in the rejection above.


**Conclusion**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Jeffrey T. Barton whose telephone number is (571) 272-1307. The examiner can normally be reached on M-F 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JTB  
7 August 2007

  
NAM NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700